

WE CLAIM:

1. A method for reducing the effect of errors in a semiconductor process wherein said process incorporates a photolithography tool in which a stage holding a semiconductor wafer is automatically moved into focus, said method comprising:
  - collecting data indicating the movement the photolithographic tool performs to bring the semiconductor wafer into focus;
  - comparing said data with pre-determined error conditions for said movement;
  - generating a signal to indicate that said data meets said pre-determined error conditions.
2. The method of Claim 1, wherein said step of collecting data comprises collecting data at a plurality of locations on said semiconductor wafer, and said step of comparing comprises comparing said data collected at said plurality of locations on said semiconductor wafer with pre-determined error conditions, and said step of generating comprises generating a signal to halt subsequent processing for said wafer if data for a pre-determined number of said plurality of locations exceeds said pre-determined error conditions.
3. The method of Claim 1, wherein said step of collecting data comprises polling said photolithography tool for the mean standard deviation of the pitch of the stage.
4. The method of Claim 1, wherein said pre-determined error conditions comprise a threshold for the maximum mean standard deviation of the pitch of the stage.
5. The method of Claim 1, wherein said signal comprises an electronic mail message to personnel monitoring said process.
6. A method for reducing the effect of errors in a semiconductor process wherein said process incorporates a photolithography tool in which a stage holding a semiconductor wafer is tilted during autofocusing in response to a topographical feature on said wafer, said method comprising:
  - logging the mean standard deviation of the pitch of said stage for each exposure said tool makes on said wafer;

comparing the logged mean standard deviation of the pitch of said stage for each exposure to pre-determined error conditions;

implementing a pre-determined action in the event the logged mean standard deviation of the pitch of said stage meets said pre-determined error conditions.

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7. The method of Claim 6, wherein said step of logging is performed by a computer in the photolithography tool.

8. The method of Claim 7, where said step of comparing comprises polling of the  
10 computer in the photolithography tool by an automation host computer external to said photolithography tool, and further comprises analyzing polled data in a model by said automation host computer.

9. The method of Claim 6, wherein said step of implementing a pre-determined action  
15 comprises sending an electronic mail message to personnel monitoring said process.

10. The method of Claim 6, wherein said step of implementing a pre-determined action comprises suspending an affected wafer or wafers from further processing.

20 11. The method of Claim 6, wherein said step of implementing a pre-determined action comprises taking said photolithography tool off line.

12. A photolithography system, comprising:

25 a photolithography tool which includes a stage upon which a semiconductor wafer is mounted, wherein said tool is operable to move said stage to automatically focus a pre-determined image on a surface of said semiconductor wafer, said tool further operable to log movements of said stage; and

an automation host computer operable to poll said photolithography tool to obtain data reflecting said logged movements of said stage, said automation host  
30 computer further operable to analyze said data and compare said data to pre-determined error conditions and to take a pre-determined action in the event said data meets said pre-determined error conditions.

13. The system of Claim 12 wherein said data reflecting said logged movements of said stage comprises data indicating the pitch of the stage.

5 14. The system of Claim 12 wherein said pre-determined action comprises sending an electronic mail message to personnel monitoring said process.

15. The system of Claim 12 wherein said pre-determined action comprises suspending an affected wafer or wafers from continued processing.

10 16. The system of Claim 12 wherein said pre-determined action comprises taking said photolithography tool off line.